Algebra 1 Quick Quiz

September 10,2019

1. When $(x)(x - 5)(2x + 3)$ is expressed as a polynomial in standard form, which statement about the resulting polynomial is true?

(1) The constant term is 2.

(2) The leading coefficient is 2.

(3) The degree is 2.

(4) The number of terms is 2.

2. The population of a city can be modeled by $P(t) = 3810(1.0005)^{7t}$, where $P(t)$ is the population after t years. Which function is approximately equivalent to $P(t)$?

(1) $P(t) = 3810(0.1427)^t$

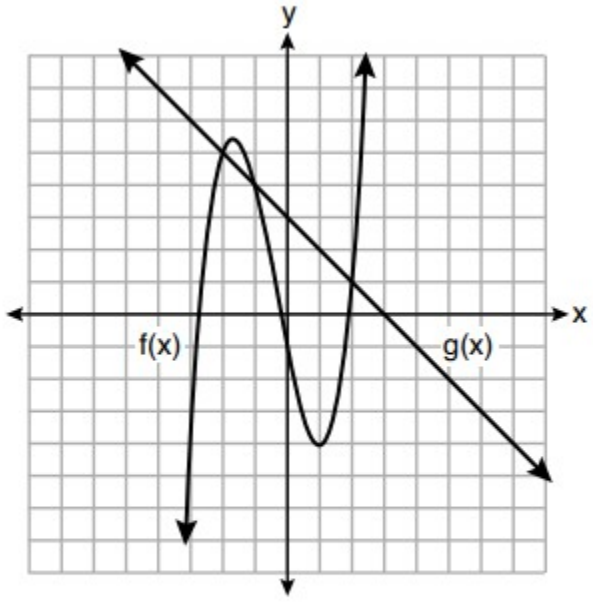
(2) $P(t) = 3810(1.0035)^t$

(3) $P(t) = 26{,}670(0.1427)^t$

(4) $P(t) = 26{,}670(1.0035)^t$

3.

The functions $f(x)$ and $g(x)$ are graphed on the set of axes below.



For which value of x is $f(x) \neq g(x)$?

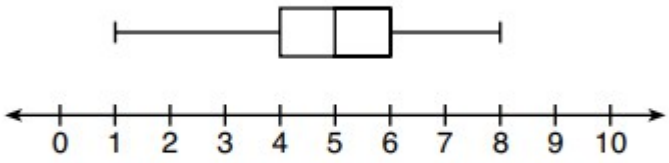
(1) -1

(2) 2

(3) 3

(4) -2

4. What is the range of the box plot shown below?



(1) 7

(2) 2

(3) 3

(4) 4

5.

Which expression is *not* equivalent to $2x^2 + 10x + 12$?

(1) $(2x + 4)(x + 3)$

(2) $(2x + 6)(x + 2)$

(3) $(2x + 3)(x + 4)$

(4) $2(x + 3)(x + 2)$

6. The quadratic functions $r(x)$ and $q(x)$ are given below.

x	r(x)
−4	−12
−3	−15
−2	−16
−1	−15
0	−12
1	7

$q(x) = x^2 + 2x - 8$

The function with the *smallest* minimum value is

(1) $q(x)$, and the value is -9

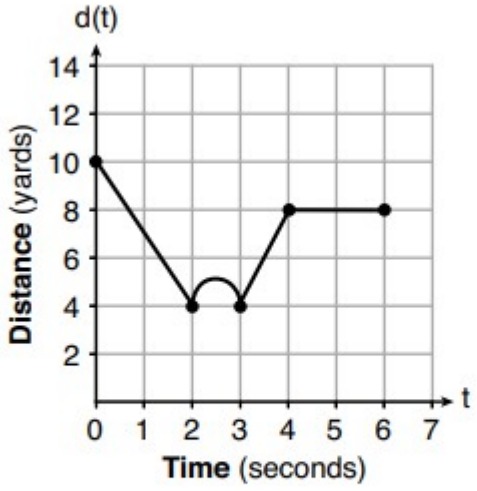
(2) $q(x)$, and the value is -1

(3) $r(x)$, and the value is -16

(4) $r(x)$, and the value is -2

7.

A child is playing outside. The graph below shows the child's distance, $d(t)$, in yards from home over a period of time, t, in seconds.



Which interval represents the child constantly moving closer to home?

(1) $0 \leq t \leq 2$

(2) $2 \leq t \leq 3$

(3) $3 \leq t \leq 4$

(4) $4 \leq t \leq 6$

8.

If $a_1 = 6$ and $a_n = 3 + 2(a_{n-1})^2$, then a_2 equals

(1) 75

(2) 147

(3) 180

(4) 900

9.

The length of a rectangular patio is 7 feet more than its width, w. The area of a patio, $A(w)$, can be represented by the function

(1) $A(w) = w + 7$

(2) $A(w) = w^2 + 7w$

(3) $A(w) = 4w + 14$

(4) $A(w) = 4w^2 + 28w$

10.

A dolphin jumps out of the water and then back into the water. His jump could be graphed on a set of axes where x represents time and y represents distance above or below sea level. The domain for this graph is best represented using a set of

(1) integers

(2) positive integers

(3) real numbers

(4) positive real numbers

BONUS

11.

Which system of linear equations has the same solution as the one shown below?

$$x - 4y = -10$$
$$x + y = 5$$

(1) $5x = 10$
$x + y = 5$

(2) $-5y = -5$
$x + y = 5$

(3) $-3x = -30$
$x + y = 5$

(4) $-5y = -5$
$x - 4y = -10$

Reference Sheet

High School Mathematics Assessment Reference Sheet

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5280 feet
1 mile = 1760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilograms
1 kilogram = 2.2 pounds
1 ton = 2000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallons
1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d \ \ or \ \ C = 2\pi r$
General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pyramid	$V = \frac{1}{3}Bh$

Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Arithmetic Sequence	$a_n = a_1 + (n-1)d$
Geometric Sequence	$a_n = a_1 r^{n-1}$
Geometric Series	$S_n = \frac{a_1 - a_1 r^n}{1-r}$ where $r \neq 1$
Radians	1 radian $= \frac{180}{\pi}$ degrees
Degrees	1 degree $= \frac{\pi}{180}$ radians